



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,356	02/26/2004	Ralph E. Hurd	GEMS8081.187	2355
27061	7590	04/01/2005		
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (GEMS) 14135 NORTH CEDARBURG ROAD MEQUON, WI 53097			EXAMINER SHRIVASTAV, BRIJ B	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,356

Applicant(s)

HURD, RALPH E.

Examiner

Brij B. Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-24 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/4/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tran et al NMR Biomed. 1999:12 pp 26-30.

As regards to claim 1, Tran et al teach a method of clinical imaging, including exciting water-exchangeable spins in oxygen-bearing molecules in a region of interest having a change in oxygen status (figure 1, pages 27-28); detecting proton transfer within the region of interest from exchangeable protons within water (figure 3); and to determine changes in oxygen levels across the region of interest (page 29, discussion and chemical shift).

As regards to claims 2-9, Tran et al further teach limitations of these claims (abstract, and figure 1, 2 and 4; pages 1 and 2).

Claims 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Zijl et al (WO 03/050521 A1).

As regards to claim 25, Zijl et al teach a system of oxygen content determination, including means for exciting spins limited to targeted oxygen-carrier molecules (page 3, lines 5-18; figures 1, 4); means for determining a proton transfer from the targeted oxygen carrier molecules to imageable molecules (page 3-4, lines 18-26, 1-16; figure 5);

and means for determining oxygenation of the targeted oxygen-carrier molecule from a reconstructed image of the imageable molecule (figures 8-11 and 13).

As regards to claims 26-30, Zijl et al further teach limitations expressed in these claims (pages 8-13, also abstract).

Allowable Subject Matter

2. Claims 10-24 are allowed over the prior art of record.

Claims 10-15 are allowed, as the prior art of record does not teach or suggest a method of determining oxygenation of heme-proteins in vivo, including acquiring MR data from the non-excited molecules; and determining oxygen content of the water-exchangeable molecules from the MR data, in combination with the remaining limitations of the claims.

Claims 16-24 are allowed, as the prior art of record does not teach or suggest a magnetic resonance imaging apparatus, including to reconstruct an image from the MR data to illustrate a change in oxygen debt across the ROI, in combination with the remaining limitations of the claims.

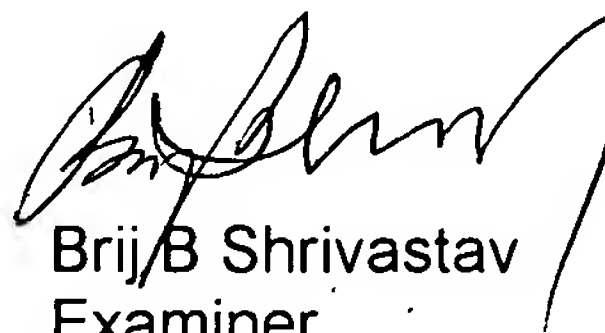
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B. Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 24, 2005



Brij/B Shrivastav
Examiner
Art Unit 2859
